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(54) Title: SURFACE MODIFIED PARTICULATE COMPOSITIONS OF BIOLOGICALLY ACTIVE SUBSTANCES

(57) Abstract: This invention disclosure relates to compositions for the delivery of stable surface modified sub-micron and micron sized particles of water-insoluble biologically active substances from a non-aqueous medium that self-disperses on exposure to an aqueous environment.

# INTERNATIONAL SEARCH REPORT

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PCT/US 00/25880

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 A61K9/14 A61K9/107

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS, EMBASE, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 29300 A (MISHRA AWADHESH K ;PARIKH INDU (CA); MOUSSA ISKANDAR (CA); RTP PHA) 17 June 1999 (1999-06-17) the whole document ---	2,3,5, 8-14
X	WO 99 29316 A (MISHRA AWADHESH K ;MOUSSA ISKANDAR (CA); CLARKE NUALA M (IE); CYCL) 17 June 1999 (1999-06-17) the whole document ---	2,3,5, 8-14
X	US 5 827 822 A (FLOC H ROBERT ET AL) 27 October 1998 (1998-10-27) the whole document ---	2,8-14
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
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- \*G\* document member of the same patent family

Date of the actual completion of the international search

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 091 187 A (HAYNES DUNCAN H) 25 February 1992 (1992-02-25) cited in the application column 7, line 48 -column 8, line 44 column 9, line 50 -column 10, line 19 column 11, line 14 -column 12, line 61 column 16, line 60 -column 17, line 48; claims; examples 5,6; tables 2,3 ---	1,3-6, 8-14
X	US 5 560 931 A (EICKHOFF W MARK ET AL) 1 October 1996 (1996-10-01)  the whole document ---	1,3-6,8, 9,11,13, 14
X	US 4 801 455 A (LIST PAUL H ET AL) 31 January 1989 (1989-01-31) the whole document ---	1,3-6,8, 9,13,14
X	GB 1 527 638 A (BAYER AG) 4 October 1978 (1978-10-04) the whole document ---	1,3,4,6, 8,9,14
P,X	WO 00 40219 A (DEXCEL LTD ;DOMB ABRAHAM J (IL)) 13 July 2000 (2000-07-13) the whole document ---	2,3,8-14
P,X	US 6 057 289 A (MULYE NIRMAL) 2 May 2000 (2000-05-02) cited in the application the whole document ---	2-5,8-14
P,X	WO 99 49848 A (RTP PHARMA INC) 7 October 1999 (1999-10-07) the whole document ---	2-5,8-14
P,X	WO 00 10531 A (RTP PHARMA INC) 2 March 2000 (2000-03-02) the whole document ---	2-5,8,9, 13,14
P,X	WO 00 41682 A (LG CHEMICAL LIMITED ;KIM MYUNG JIN (KR); KIM SUN JIN (KR); KWON KY) 20 July 2000 (2000-07-20) cited in the application page 5, line 10 - line 21 page 6, line 1 - line 19 page 7, line 16 - line 31 page 8, line 10 -page 10, line 16 claims 1-3,5-7,11-15,17-20; example 20; table 2 -----	1,3-5, 8-14

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Present claims 1-15 relate to an extremely large number of possible compositions, non-aqueous media, surfactant systems and hydrophilic substances. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the compositions, non-aqueous media, surfactant systems and hydrophilic substances claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to the compositions prepared in the examples, and to the non-aqueous media, surfactant systems and hydrophilic substances disclosed in the examples on pages 22-28, and to the general concepts of "non-aqueous media", "surfactant systems" and "hydrophilic substances".

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

# INTERNATIONAL SEARCH REPORT

information on patent family members

national Application No

PCT/US 00/25880

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9929300 A	17-06-1999	AU 1809499 A	28-06-1999
		AU 1817499 A	28-06-1999
		EP 1039893 A	04-10-2000
		NO 20002991 A	09-08-2000
		WO 9929316 A	17-06-1999
WO 9929316 A	17-06-1999	AU 1809499 A	28-06-1999
		AU 1817499 A	28-06-1999
		EP 1039893 A	04-10-2000
		NO 20002991 A	09-08-2000
		WO 9929300 A	17-06-1999
US 5827822 A	27-10-1998	AU 2219097 A	17-10-1997
		AU 709548 B	02-09-1999
		AU 6644196 A	19-03-1997
		BG 62875 B	31-10-2000
		BG 101443 A	31-03-1998
		BR 9606603 A	30-09-1997
		CA 2202887 A	06-03-1997
		CN 1164828 A	12-11-1997
		CZ 9701248 A	17-09-1997
		DE 789561 T	10-06-1999
		EP 0789561 A	20-08-1997
		ES 2129381 T	16-06-1999
		HU 9801052 A	28-09-1998
		JP 3009742 B	14-02-2000
		JP 10509462 T	14-09-1998
		NO 971890 A	24-04-1997
		PL 319898 A	01-09-1997
		SI 9620014 A	30-04-1998
		SK 53697 A	08-10-1997
		WO 9707787 A	06-03-1997
		WO 9735603 A	02-10-1997
US 5091187 A	25-02-1992	US 5091188 A	25-02-1992
		AT 181234 T	15-07-1999
		AU 7852891 A	11-11-1991
		CA 2078990 A	27-10-1991
		DE 69131349 D	22-07-1999
		DE 69131349 T	18-11-1999
		DK 533690 T	22-11-1999
		EP 0533690 A	31-03-1993
		ES 2134776 T	16-10-1999
		GR 3030825 T	30-11-1999
		IN 173056 A	05-02-1994
		KR 159114 B	01-12-1998
		MX 25532 A	01-10-1993
		RU 2100030 C	27-12-1997
		WO 9116068 A	31-10-1991
US 5560931 A	01-10-1996	US RE35338 E	24-09-1996
		US 5246707 A	21-09-1993
		ZA 9103122 A	29-04-1992
		AT 198148 T	15-01-2001
		AU 4862796 A	27-08-1996
		CA 2207304 A	15-08-1996
		DE 69611287 D	25-01-2001
		EP 0808154 A	26-11-1997

# INTERNATIONAL SEARCH REPORT

Information on patent family members

national Application No

PCT/US 00/25880

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5560931 A		JP 10513200 T	15-12-1998
		WO 9624332 A	15-08-1996
US 4801455 A	31-01-1989	DE 3623376 A	21-01-1988
		AT 61730 T	15-04-1991
		AU 597688 B	07-06-1990
		AU 7553687 A	14-01-1988
		CA 1302257 A	02-06-1992
		DE 3768734 D	25-04-1991
		DK 359787 A	12-01-1988
		EP 0256285 A	24-02-1988
		ES 2039214 T	16-09-1993
		FI 873044 A	12-01-1988
		GR 3001710 T	23-11-1992
		JP 63023811 A	01-02-1988
		PT 85292 A, B	01-08-1987
		ZA 8705044 A	24-02-1988
GB 1527638 A	04-10-1978	DE 2557615 A	23-06-1977
		AU 503449 B	06-09-1979
		AU 2073676 A	29-06-1978
		FR 2335204 A	15-07-1977
		NL 7614155 A	22-06-1977
		NZ 182909 A	20-09-1978
		ZA 7607506 A	30-11-1977
WO 0040219 A	13-07-2000	AU 1796200 A	24-07-2000
US 6057289 A	02-05-2000	AU 4681200 A	17-11-2000
		WO 0066140 A	09-11-2000
WO 9949848 A	07-10-1999	AU 3377099 A	18-10-1999
		EP 1067908 A	17-01-2001
		SE 0003449 A	23-11-2000
WO 0010531 A	02-03-2000	AU 5570599 A	14-03-2000
WO 0041682 A	20-07-2000	AU 3080500 A	01-08-2000
		BR 0004152 A	21-11-2000
		EP 1071407 A	31-01-2001